Amendments to the Claims

Claim 1 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars, wherein at least one of the different acoustic models and at least one of the different grammars is downloaded over a network;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user.

Claim 2 (Original): The system of Claim 1 further comprising the plurality of devices coupled to the natural language interface module.

Claim 3 (Original): The system of Claim 1 wherein the speech recognition module utilizes an N gram grammar.

Claim 4 (Original): The system of Claim 1 wherein the

natural language interface module utilizes a probabilistic context free grammar.

Claim 5 (Previously presented): The system of Claim 1 wherein the microphone array comprises said 3 dimensional microphone array further comprising a planar microphone array and at least one linear microphone array located in a different plane in space.

Claim 6 (Currently amended): A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface abstracts each of the plurality of devices into a respective one ~~on~~ of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices.

Claim 7 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface module searches for the non-prompted, open-ended user requests upon the receipt and recognition of an attention word.

Claim 8 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes

hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word.

Claim 9 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and

a grammar module for storing different grammars for each of the plurality of devices.

Claim 10 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and

an acoustic model module for storing different acoustic models for each of the plurality of devices.

Claim 11 (Original): The system of Claim 1 wherein the device interface comprises a wireless device interface.

Claim 12 (Original): The system of Claim 1 further comprising an external network interface coupled to the natural language interface control system.

Claim 13 (Original): The system of Claim 1 further comprising a remote unit containing a first microphone array, the feature extraction module, the speech recognition module, and the natural language interface module, wherein said 3 dimensional microphone array includes the first microphone array.

Claim 14 (Original): The system of Claim 13 further comprising a base unit coupled to the remote unit.

Claim 15 (Previously presented): The system of Claim 14 wherein the base unit includes a second microphone array, wherein said 3 dimensional microphone array includes the second microphone array.

Claim 16 (Previously presented): The system of Claim 15 wherein the first microphone array and the second microphone array implement said 3 dimensional microphone array.

Claim 17 (Currently amended): A method of speech recognition comprising:

searching for an attention word based on a first context including a first set of models, grammars, and lexica; and

switching, upon finding the attention word, to a second

context to search for an open-ended user request, wherein the second context includes a second set of models, grammars, and lexicons.

Claims 18 through 25 were previously cancelled without prejudice or disclaimer.

Claim 26 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a first microphone;

a feature extraction module coupled to the first microphone;

a speech recognition module coupled to the feature extraction module;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and

an external network interface coupled to the natural

language interface control system.

Claim 27 (Previously presented): The system of Claim 26 further comprising the plurality of devices coupled to the natural language interface module.

Claim 28 (Previously presented): The system of Claim 26 wherein the speech recognition module utilizes an N gram grammar.

Claim 29 (Previously presented): The system of Claim 26 wherein the natural language interface module utilizes a probabilistic context free grammar.

Claim 30 (Previously presented): The system of Claim 26 wherein the microphone array comprises a 3 dimensional microphone array comprising a planar microphone array and at least one linear microphone array located in a different plane in space.

Claim 31 (Previously presented): The system of Claim 26 wherein the natural language interface abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices.

Claim 32 (Previously presented): The system of Claim 26 wherein the natural language interface module searches for the non-prompted, open-ended user requests upon the receipt and recognition of an attention word.

Claim 33 (Previously presented): The system of Claim 26 wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word.

Claim 34 (Previously presented): The system of Claim 26 further comprising a grammar module for storing different grammars for each of the plurality of devices.

Claim 35 (Previously presented): The system of Claim 26 further comprising an acoustic model module for storing different acoustic models for each of the plurality of devices.

Claim 36 (Previously presented): The system of Claim 26 wherein the device interface comprises a wireless device interface.

Claim 37 (Previously presented): The system of Claim 26 further comprising a remote unit containing the first microphone array, the feature extraction module, the speech recognition module, and the natural language interface module.

Claim 38 (Previously presented): The system of Claim 37 further comprising a base unit coupled to the remote unit.

Claim 39 (Previously presented): The system of Claim 38 wherein the base unit includes a second microphone array.

Claim 40 (Previously presented): The system of Claim 39 wherein the first microphone comprises a first microphone array, and said first microphone array and the second microphone array implement a 3 dimensional microphone array.

Claim 41 (Previously presented): The system of Claim 26 further comprising a central database coupled to said external network interface, said central database including at least one of grammars; speech models; device abstractions; programming information; and lexica.

Claim 42 (Previously presented): The system of Claim 41

wherein said central database is coupled to said external network interface through an external network.

Claim 43 (Previously presented): The system of Claim 42 further comprising:

a remote server coupled to said external network and to said central database.

Claim 44 (Previously presented): The system of Claim 42 further comprising:

another natural language interface control system; and another external network interface coupled to said other natural language interface control system, and to said external network.

Claim 45 (Previously presented): A natural language interface control system for operating a plurality of devices comprising:

a first microphone;

a feature extraction, speech recognition and natural language interface module coupled to the first microphone;

a device interface coupled to the feature extraction, speech recognition and natural language interface module, wherein the feature extraction, speech recognition and natural language

interface module is for operating at least one device coupled to the device interface based upon non-prompted, open-ended natural language requests; and

an external network interface coupled to the natural language interface control system.

Claim 46 (Previously presented): The system of Claim 45 further comprising a central database coupled to said external network interface, said central database including at least one of additional grammars; additional hidden Markov models; additional device abstractions; programming information; and lexica.

Claim 47 (Previously presented): The system of Claim 46 wherein said central database is coupled to said external network interface through an external network.

Claim 48 (Previously presented): The system of Claim 47 further comprising:

a remote server coupled to said external network and to said central database.

Claim 49 (Previously presented): The system of Claim 47

further comprising:

another natural language interface control system; and

another external network interface coupled to said other natural language interface control system, and to said external network.

Claim 50 (Previously presented): A method of making a natural language interface control system for operating a plurality of devices comprising:

providing a first microphone;

coupling a feature extraction, speech recognition and natural language interface module to the first microphone;

coupling a device interface to the feature extraction, speech recognition and natural language interface module, wherein the feature extraction, speech recognition and natural language interface module is for operating at least one device coupled to the device interface based upon non-prompted, open-ended natural language requests; and

coupling an external network interface to the natural language interface control system.

Claim 51 (Previously presented): The method of Claim 50 further comprising;

coupling a central database to said external network interface, said central database including at least one of additional grammars; additional hidden Markov models; additional device abstractions; programming information; and lexica.

Claim 52 (Previously presented): The method of Claim 51 further comprising coupling said central database to said external network interface through an external network.

Claim 53 (Previously presented): The method of Claim 52 further comprising:

coupling a remote server to said external network and to said central database.

Claim 54 (Previously presented): The method of Claim 52 further comprising:

providing another natural language interface control system; and

coupling another external network interface to said other natural language interface control system, and to said external network.

Claim 55 (Previously presented): A natural language

interface control method comprising:

providing a feature extraction, speech recognition and natural language interface module;

coupling the feature extraction, speech recognition and natural language interface module to an external network; and

downloading at least one of grammars; speech models; device abstractions; programming information; and lexica into the feature extraction, speech recognition and natural language interface module through the external network.

Claim 56 (Previously presented): A natural language interface control method comprising:

providing a feature extraction, speech recognition and natural language interface module;

coupling the feature extraction, speech recognition and natural language interface module to an external network; and

transmitting at least one of grammars; speech models; device abstractions; programming information; and lexica from the feature extraction, speech recognition and natural language interface module to the external network.